

Natural Gas Prices

Economic Impact on Industrial and Large Commercial Customers

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Nitrogen Fertilizer Manufacturing

- Top 5 U.S. Industrial Natural Gas Users
- Uses 300,000 MMBtu/D, or about 100 BCF Annually
- Natural Gas is 70%-90% of the Total Cost of Producing Fertilizer
- \$0.01/MMBtu Change in Price = \$1MM Annually

The Fertilizer Process

- Natural Gas in the Production Process
 - 60% Feedstock
 - 40% Fuel
- $\text{CH}_4 + 2\text{H}_2\text{O} = 4\text{H}_2 + \text{CO}_2$
- $3\text{H}_2 + \text{N}_2 = 2\text{NH}_3$
- Process Temperature = 1500 degrees F
- No Viable Substitute Fuel

Foreign Fertilizer Competition

Late 2000

- US Natural Gas Prices Near \$10.00 MMBtu
- Foreign Competition at \$0.50 - \$1.50 MMBtu
- Impact of Foreign Imports
 - Gulf Coast Production Shut Down
 - Midwest Production – Marginally Profitable?

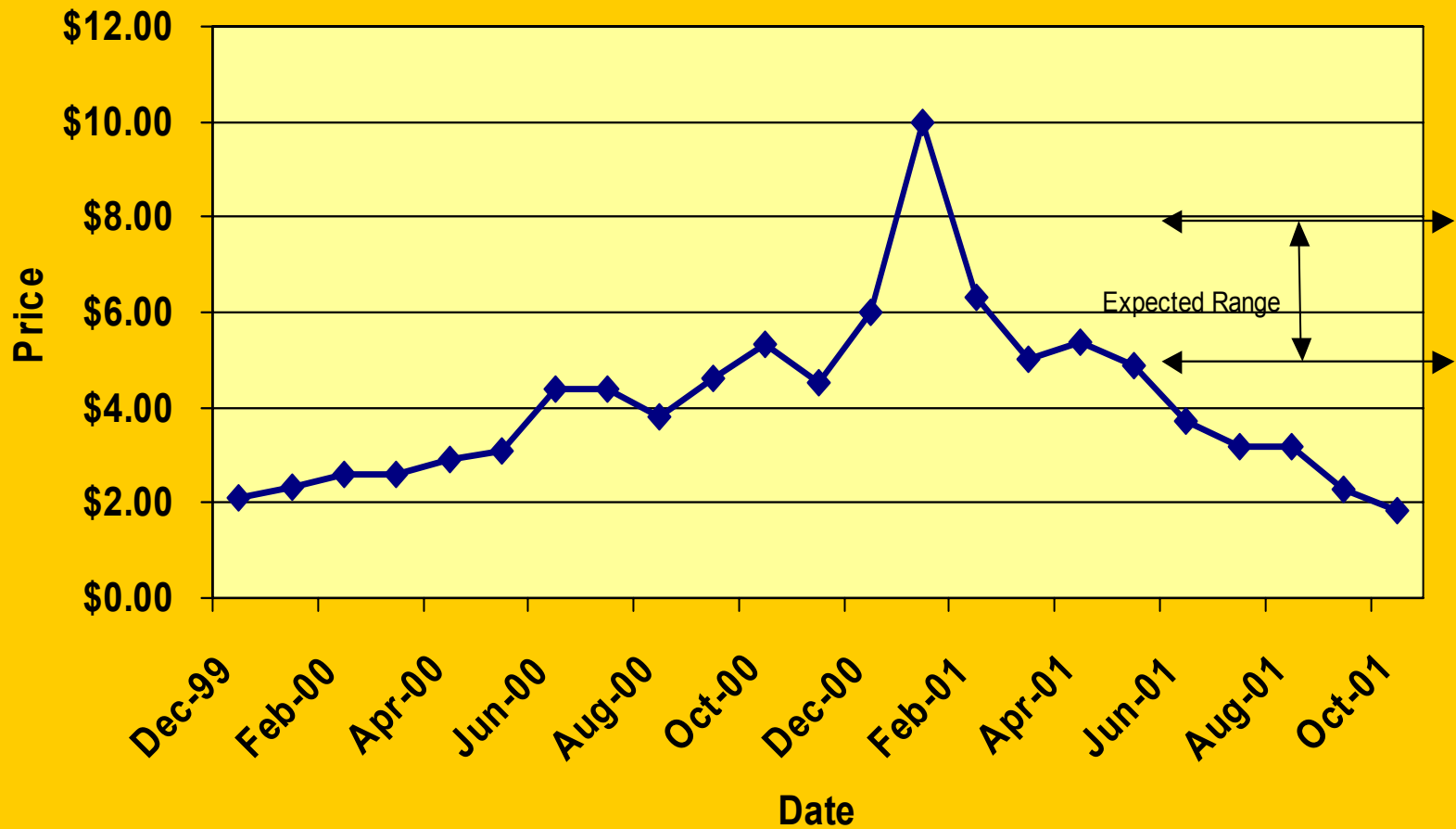
Timing Issues

- Time Lag between Production and Sales
- Prices Collapse
 - Lower Demand
 - Imports
 - Lower Gas Prices
- Losses on Prior Production

Expectation vs. Reality

- Summer Prices \$5 - \$8
- Continued Supply Shortfall
- \$2 Gas Gone Forever
- \$5 Price Floor

Nymex Settlement Prices



Foreign Fertilizer Competition

Today

- Foreign Natural Gas Prices \$0.50 - \$1.50 MMBtu
- Impact of Foreign Imports
 - U.S. Still a Marginal Producer
 - Gulf Coast Production Usually Shut Down
 - Midwest Production Curtailed.
- All New Plants Being Built Abroad
- Countries With High Gas Reserves Want To Monetize Those Reserves

Price Volatility

- Discourages Investment on Both Ends of the Supply Chain
 - Producers Slow to Drill
 - End Use Energy Projects Have Uncertain Payout

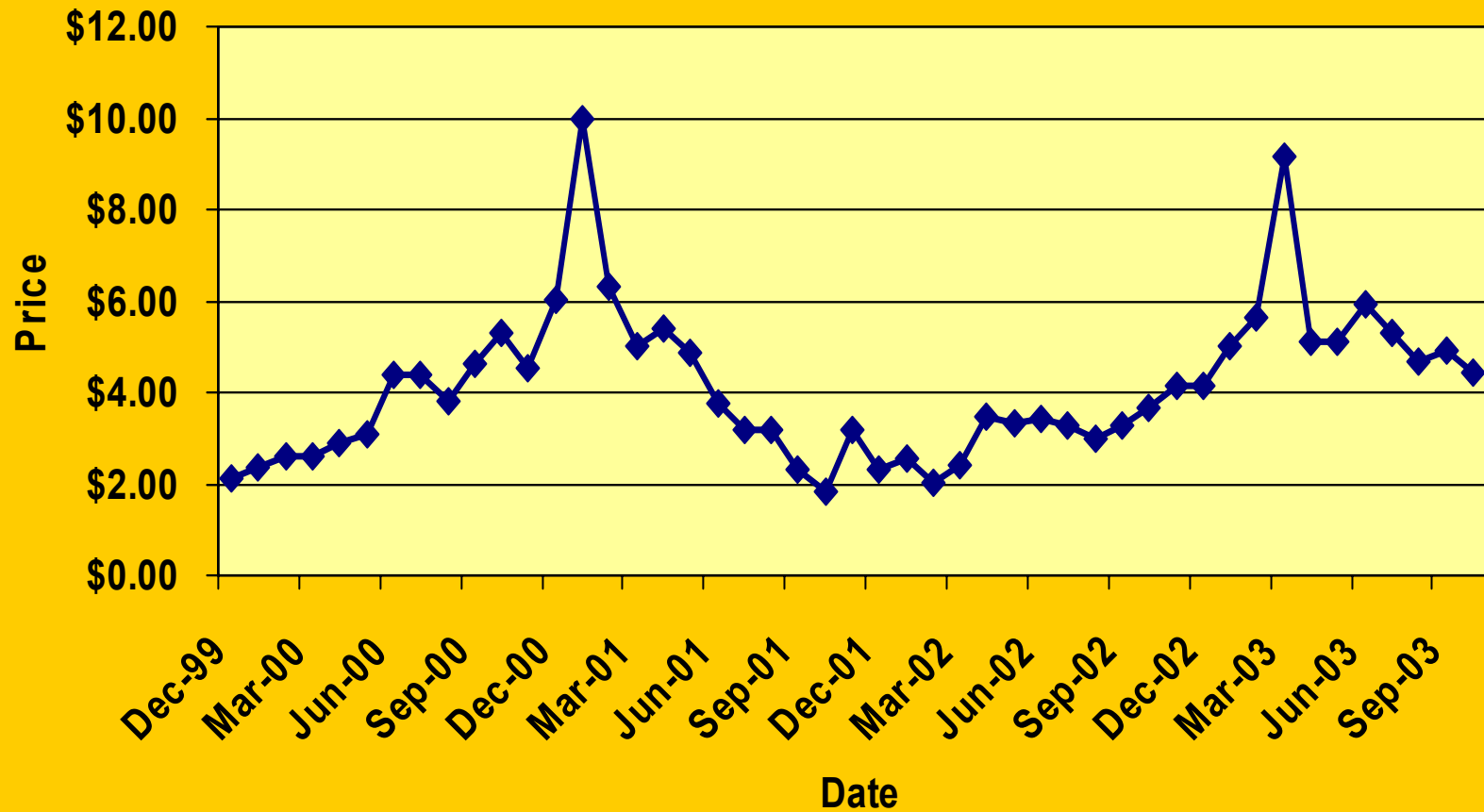
Hedging Programs

- Not a Cure All
- Poor Hedging Worse Than No Hedging
- Common Problems
 - Starting Program at Market Peak
 - Out of Synchrony with Market

Hedging Programs

- Universal Questions
 - How Much?
 - What Price?
 - What Instruments?
- Goals
 - Stay in Business
 - Cut off Peaks w/o Filling in too Much of the Valleys

Nymex Settlement Prices



Cycle Phenomena

- Clean Air Act Encouraged Natural Gas Consumption
- Regulatory Environment Discouraged Natural Gas Production
- Partial Deregulation of Electricity Added Uncertainty and Burden to Gas Industry

Solutions

- Conservation
- Alternative Energy Sources
- Resolve Nuclear Waste Issue
- Expand Pipeline System
- Remove Barriers to LNG
- Clean Coal Technology
- Resolve Electric Industry Issues